Space Weather Forecast

Issued on Friday 25 October 2024 at 01:32 Local

This forecast provides a four-day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

---

Space Weather Forecast Headline: Moderate flares likely, slight chance of further Strong flares. Chance G1-G2/Minor-Moderate geomagnetic storm intervals days 2 and 3 (26/27 Oct).

Analysis of Space Weather Activity over past 24 hours

Solar Activity: High with peak isolated strong flare at 24/0357 UTC from the southeast limb. There are currently around ten regions on the visible disc. The main regions of interest are a collection of potentially complex and interconnected sunspot regions close to the southeast limb. While currently difficult to assess, these are accompanied by areas of brightness and complex looping evident on imagery.

The strong X3.3 flare produced a coronal mass ejection that has been assessed as a likely miss, passing behind Earth, though some Earth-directed component is possible from shock possibly arriving 26 or 27 Oct.

Solar Wind / Geomagnetic Activity: Solar winds were generally indicative of background conditions. Speeds were slow-ambient. The Interplanetary Magnetic Field remained mostly weak, on a declining trend. The north-south component was mostly negative (southward), fluctuating weakly. Phi angle was mostly positive (away from the Sun). Geomagnetic activity was Quiet to Unsettled (Kp 1-3), but with an Active interval (Kp 4) 24/0600-0900 UTC.

Energetic Particles / Solar Radiation: The count rate of energetic particles (High energy protons) persisted at background with no Solar Radiation Storms observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Low to Moderate is expected, with Moderate-class flares considered likely and a slight chance of further Strong-class flares.

Solar Wind / Geomagnetic Activity: The are no Earth-directed coronal mass ejections, but two or three coronal mass ejections which may give shock or glancing impacts day 2 or day 3 (26/27 Oct). Solar winds are currently at background levels. Winds are expected to remain at largely background levels until day 2 (26 Oct) with fast winds from CH84/- peaking at slightly elevated or elevated speeds before waning during day 3 (27 Oct).

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 370 900 0100 Email: enquiries@metoffice.gov.uk

© Crown Copyright 2024. All Rights Reserved.

Activity is expected to be largely Quiet to Unsettled (Kp 1-3) to start. The combined onset of any enhancement from CH84/-, and the influence of any shock or glancing coronal mass ejection impacts brings a chance of G1-G2/Minor-Moderate geomagnetic storms (Kp5-6) during day 2 (26 Oct) or early day 3 (27 Oct) before easing into day 4 (28 Oct).

Energetic Particles / Solar Radiation: The count rate of energetic particles (High energy protons) is forecast to persist at background with no Solar Radiation Storms currently expected.

Geomagnetic Storms

Geomagnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	10	40	30	10
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X-Ray Flares

X-Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 (M Class)	No	60	60	60	60
Very Active	R3-R5 (X Class)	No	10	10	10	10

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 370 900 0100 Email: enquiries@metoffice.gov.uk

© Crown Copyright 2024. All Rights Reserved.

Solar Radiation Storms (High Energy Protons)

Radiation Storms Probability (Exceedance)	Level ($cm^{-2}sr^{-1}s^{-1}$)	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	**≥ S1**	No	5	5	10	10
Very Active	**≥ S3 ***	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and/or 50 MeV ≥ 10pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 370 900 0100 Email: enquiries@metoffice.gov.uk

© Crown Copyright 2024. All Rights Reserved.